

REMARKS

The invention, as defined by the currently pending independent claims, relates to compositions and methods for power transmission fluids having improved steel-on-steel friction properties. The compositions and methods require a non-obvious use of a thiadiazole component in a selected weight range, wherein the thiadiazole provides the unexpected property of increased steel-on-steel friction when used in accordance with the teachings of the present specification.

Error Related to 35 U.S.C. §112 Rejections.

The rejection of claims 1, 3-7, 9-11, 13-19, 23, 26, and 28 as allegedly failing to comply with the written description requirement of 35 U.S.C. §112, first paragraph, is not well taken. The specification, in Table 1, provides examples of different coefficients of friction measured on top, overdrive, and low pulleys, based on different formulations tested, as measured by a Van Doorne push belt CVT dynamometer test. The lowest low pulley coefficient of friction listed is 0.0758, and the highest is 0.0855 (which, when taken to 3 significant digits is 0.090). The thiadiazole is used in the examples at 0.095 wt% and 0.30 wt%. Page 4, lines 18-25, of the specification, as well as original claims 4 and 5 provide literal support for the recited range of thiadiazole in the composition required to achieve the claimed low pulley coefficients of friction. Therefore, there is literal support in the specification for the low pulley coefficient of friction to range from about 0.0758 to at least about 0.090, when the thiadiazole is also present in the recited range. Accordingly, the claims are sufficiently definite and fulfill the written description requirement of §112. The rejection had been maintained in error, and it is respectfully requested that the rejection be reconsidered and withdrawn, and that all claims be allowed.

Error Related to Anticipation Rejections Based on 6,251,840.

The rejection of claims 1, 3-7, 9-11, 13-19, 23, and 25-28 as allegedly being anticipated by Ward is not well taken. In order for a reference to anticipate a claim, the reference must provide each and every element and limitation of the claim. If a single element or limitation present in the claim is missing from the reference, the reference is not anticipatory.

In this case, it is erroneous to maintain the anticipation rejections of independent claims 1, 11, 19, and 26 over Ward because Ward does not disclose the claimed thiadiazole component range with sufficient specificity to anticipate the present claims. Although Ward discloses a generic range for the thiadiazole in column 4, line 39, Ward fails to teach, suggest, or disclose

the specific range of thiadiazole required to achieve the coefficient of friction claimed by applicants. As set forth in the MPEP in §2131.03:

“If the claims are directed to a narrow range, and the reference teaches a broad range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. See, e.g., Atofina v. Great Lakes Chem. Corp., 441 F.3d 991, 999, 78 USPQ2d 1417, 1423 (Fed. Cir. 2006) wherein the court held that a reference temperature range of 100-500 degrees C did not describe the claimed range of 330-450 degrees C with sufficient specificity to be anticipatory. Further, while there was a slight overlap between the reference's preferred range (150-350 degrees C) and the claimed range, that overlap was not sufficient for anticipation. '[T]he disclosure of a range is no more a disclosure of the end points of the range than it is each of the intermediate points.' Id. at 1000, 78 USPQ2d at 1424. Any evidence of unexpected results within the narrow range may also render the claims unobvious.”

The Ward reference only provides specific examples containing 0.05 wt.% thiadiazole (see Table II, col. 16, line 50), which is the customary amount of thiadiazole used in such applications. Furthermore, Ward fails to teach, suggest, or disclose the benefits of adding more than the customary amount of thiadiazole to achieve improved steel-on-steel friction. Ward is mainly directed to using the customary amounts of thiadiazole to provide acceptable corrosion/anti-wear protection. An amount of 0.05 wt.% of thiadiazole, as shown in the examples in Ward, is a common or typical amount used for corrosion/anti-wear protection, and the prior art is replete with examples using thiadiazole around this level or below.

It simply is not intuitive that one could increase the coefficient of friction by increasing the level of this type of additive, i.e., one designed to impact pitting/wear and corrosion, particularly one like thiadiazole which achieves its intended effects at relatively low weight percents.

Since Ward is manifestly deficient in teaching, disclosing, or suggesting the compositions and methods defined in currently amended pending independent claims 1, 11, 19, 26, and 28, the rejection of claims 1, 11, 19, 26, and 28 over Ward is wholly untenable and should be withdrawn.

Claims 3-7, 9-10, and 23 depend from claim 1 and claims 13-18, 25, and 27 depend from claim 11 and provide additional important limitations. These claims are patentable over Ward

for the same reasons claims 1 and 11 are patentable over Ward. Reconsideration and allowance of claims 1, 3-7, 9-11, 13-19, 23, and 25-28 are hereby respectfully requested.

As a final remark regarding the alleged anticipation rejection, the Office Action cites *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989) as support for the anticipation rejection. However, Applicants would like to respectfully point out that this particular case is cited four times in the MPEP, and each citation pertains to the establishment of obviousness, not anticipation:

- 716.02(a) – Obviousness evidence must show unexpected results
- 2123 – Rejection over prior art's broad disclosure instead of preferred embodiments
- 2144.05 – Obviousness of Ranges
- 2144.08 – Obviousness of Species When Prior Art Teaches Genus

Thus, citation of *Merck* is improper and in error for the purposes of establishing alleged anticipation.

Error Related to Obviousness Rejections Based on 6,251,840.

The alternative rejection of claims 1, 3-7, 9-11, 13-19, 23, and 25-28 as allegedly being obvious over Ward is also not well taken. In order for a reference to render a claim obvious, the reference must be shown to provide each and every element and limitation of the claim. Plus, it must be shown that it would have been "obvious" to a person having ordinary skill in the art at the time the invention was made to put the claimed elements together in the claimed manner. Unexpected results are evidence of non-obviousness.

Claims 1, 11, 19, 26, and 28 are directed to compositions and methods for improving steel-on-steel friction properties in power transmitting fluids. The remaining claims are dependent therefrom. An important element of the claims is the novel and non-obvious use of a thiadiazole derivative. The thiadiazole exhibits increased steel-on-steel friction with increasing concentration (Page 7, Table I). Thiadiazoles are commonly known as corrosion inhibitors, and are typically used at very small concentrations to accomplish this function. Thiadiazoles and their derivatives are also known in the art as corrosion inhibitors (Ward, Col. 1, Lines 40-41) or friction **reducing** agents (Ward, Col. 1, Lines 45-48), among other things. They are typically used at the minimal concentrations effective to provide the desired functionality.

An important and unobvious unexpected result of Applicants' claimed invention is that the thiadiazole **increases** steel-on-steel friction. According to Ward (Col. 1, Lines 45-48),

thiadiazole derivatives are known in the art as friction reducing additives. The increase in coefficient of friction found by Applicants use of thiadiazole in the inventive formulations is totally unexpected and unpredictable. Accordingly, the increases in the coefficient of friction results shown in Table 1 were unexpected, and a person of ordinary skill in the art reading Ward would have no reasonable expectation for success in using increased concentrations (relative to concentrations required for other known uses) of thiadiazoles to improve steel-on-steel friction properties in CVT transmissions, as Applicants have advantageously discovered and claimed. Therefore, the obviousness rejection of the present claims is believed to be held in error, and reconsideration, withdrawal of the rejection, and allowance of all pending claims are hereby respectfully requested.

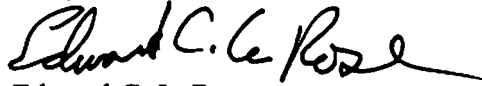
Conclusion

It is therefore respectfully requested that the rejections be withdrawn and the claims be allowed.

Respectfully submitted,

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